Appendix F

Contribution of Undiscovered Resources in the Pacific OCS Region to Undiscovered Resources in the United States OCS

This appendix presents a discussion of the contribution of undiscovered conventionally recoverable and economically recoverable oil and gas resources in the Pacific OCS Region to the undiscovered resources of the United States OCS. The undiscovered resources of the OCS are estimated to exist in four administrative regions (fig. F1).

Estimates of undiscovered resources in the Pacific OCS Region discussed here are from the *Summary and Discussion of Resource Estimates* section of this report. Estimates of undiscovered resources in other OCS regions and the United States OCS are from the following sources: Sherwood and others, 1996 (Alaska OCS Region); Lore and others, 1996 (Atlantic and Gulf of Mexico OCS Regions); and Minerals Management Service, 1996 (United States OCS).

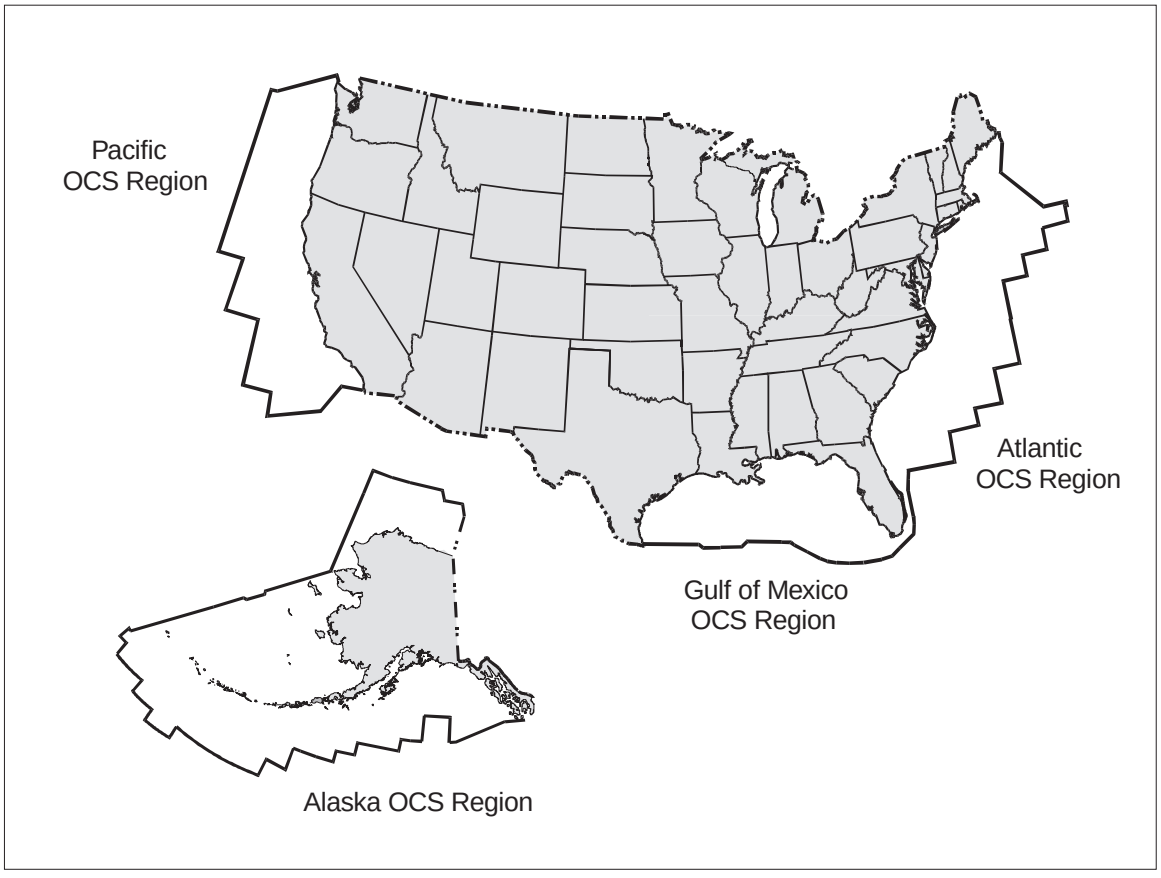

Figure F1. *Map showing administrative regions of the United States OCS.*

UNDISCOVERED CONVENTIONALLY RECOVERABLE RESOURCES

Based on this assessment, the total volume of undiscovered conventionally recoverable oil resources (including crude oil and condensate) in the United States OCS is estimated to range from 37.1 to 55.3 Bbbl (low to high estimates) with a mean estimate of 45.6 Bbbl. The total volume of undiscovered conventionally recoverable gas resources (including associated and nonassociated gas) in the OCS is estimated to range from 186.3 to 369.2 Tcf with a mean estimate of 268.0 Tcf.

The low, mean, and high estimates of the resources in each OCS region are listed in table F1. The distribution of the resources among the OCS regions is illustrated, on the basis of mean estimates, in figures F2 and F3.

The Pacific OCS Region is estimated to contribute nearly one quarter of the undiscovered conventionally recoverable oil resources (23 percent on the basis of mean estimates) and less than one tenth of the undiscovered conventionally recoverable gas resources (7 percent on the basis of mean estimates) of the OCS.

Table F1. *Estimates of undiscovered conventionally recoverable oil and gas resources in the United States OCS as of January 1, 1995, by region. All estimates are risked values. The low, mean, and high estimates correspond to the 95th-percentile, mean, and 5th-percentile values of a probability distribution, respectively. Percentile values are not additive; some total mean values may not equal the sum of the component values due to independent rounding.*

Region	Oil (Bbbl)			Gas (Tcf)			BOE (Bbbl)		
	Low	Mean	High	Low	Mean	High	Low	Mean	High
Alaska OCS	16.9	24.3	33.6	58.0	125.9	229.5	28.7	46.7	70.6
Atlantic OCS	1.3	2.3	3.7	15.9	27.5	43.4	4.5	7.2	10.7
Gulf of Mexico OCS	6.0	8.3	11.1	82.3	95.7	110.3	21.2	25.4	30.0
Pacific OCS	9.0	10.7	12.6	15.2	18.9	23.2	11.8	14.1	16.6
Total United States OCS	*37.1*	*45.6*	*55.3*	*186.3*	*268.0*	*369.2*	*72.9*	*93.4*	*117.0*

UNDISCOVERED ECONOMICALLY RECOVERABLE RESOURCES

The total volume of undiscovered conventionally recoverable resources in the United States OCS that is estimated to be economically recoverable at economic and technological conditions existing as of this assessment (i.e., the $18-per-barrel economic scenario) is 14.4 Bbbl of oil and 72.5 Tcf of gas (mean estimates). Larger volumes of resources are estimated to be economically recoverable at more favorable economic conditions.

Mean estimates of the resources in each OCS region are listed, for two economic scenarios, in table F2. The distribution of undiscovered economically recoverable oil and gas resources among the regions is illustrated in figures F2 and F3. Resource estimates for the $18-per-barrel economic scenario (which assumes prices of $18.00 per bbl of oil and $2.11 per Mcf of gas) are used for illustrative and comparative purposes in this discussion because the oil price of this scenario closely approximates the market price of oil as of this assessment.

Nearly one third of the undiscovered conventionally recoverable oil resources of the OCS (32 percent on the basis of mean estimates and the $18-per-barrel economic scenario) and approximately one quarter of the undiscovered conventionally recoverable gas resources of the OCS (27 percent on the basis of mean estimates and the $18-per-barrel economic scenario) are estimated to be economically recoverable at economic and technological conditions existing as of this assessment. The Pacific OCS Region is estimated to contribute more than one third of the undiscovered economically recoverable oil resources (37 percent on the basis of mean estimates) and more than one tenth of the undiscovered economically recoverable gas resources (11 percent on the basis of mean estimates) of the OCS.

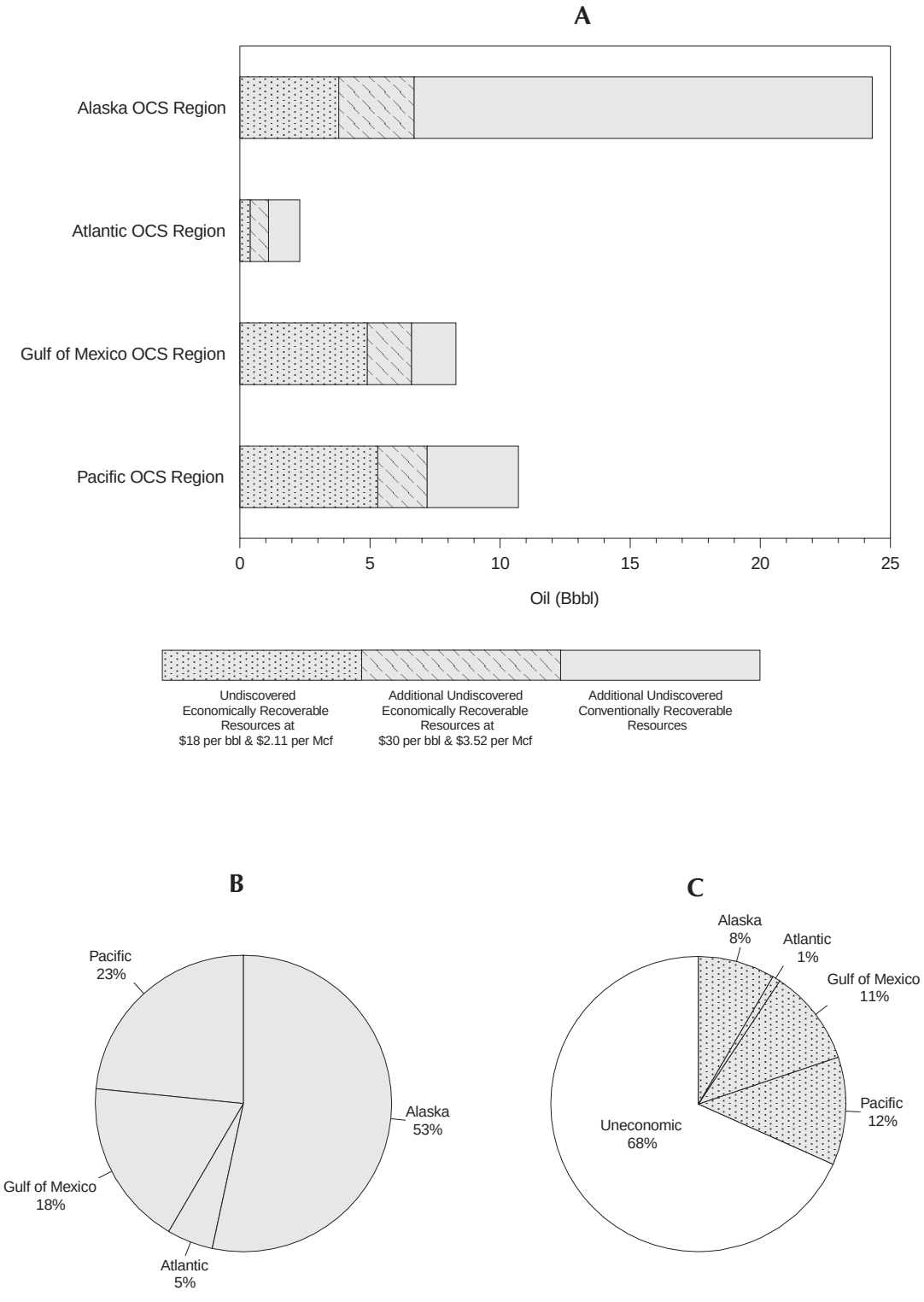

Figure F2. *Distribution of undiscovered conventionally recoverable and economically recoverable oil resources in the United States OCS, by region based on risked mean estimates listed in tables F1 and F2. Bar chart (A) shows incremental volumes of undiscovered economically recoverable oil resources for two economic scenarios and additional undiscovered conventionally recoverable oil resources; the entire bar represents the estimated total volume of undiscovered conventionally recoverable oil resources. Pie charts show proportionate volumes of undiscovered conventionally recoverable oil resources (B) and undiscovered conventionally recoverable oil resources that are economically recoverable versus uneconomic at the $18-per-bbl scenario (C). The sum of the percentage values in some pie charts may not equal 100 percent due to independent rounding.*

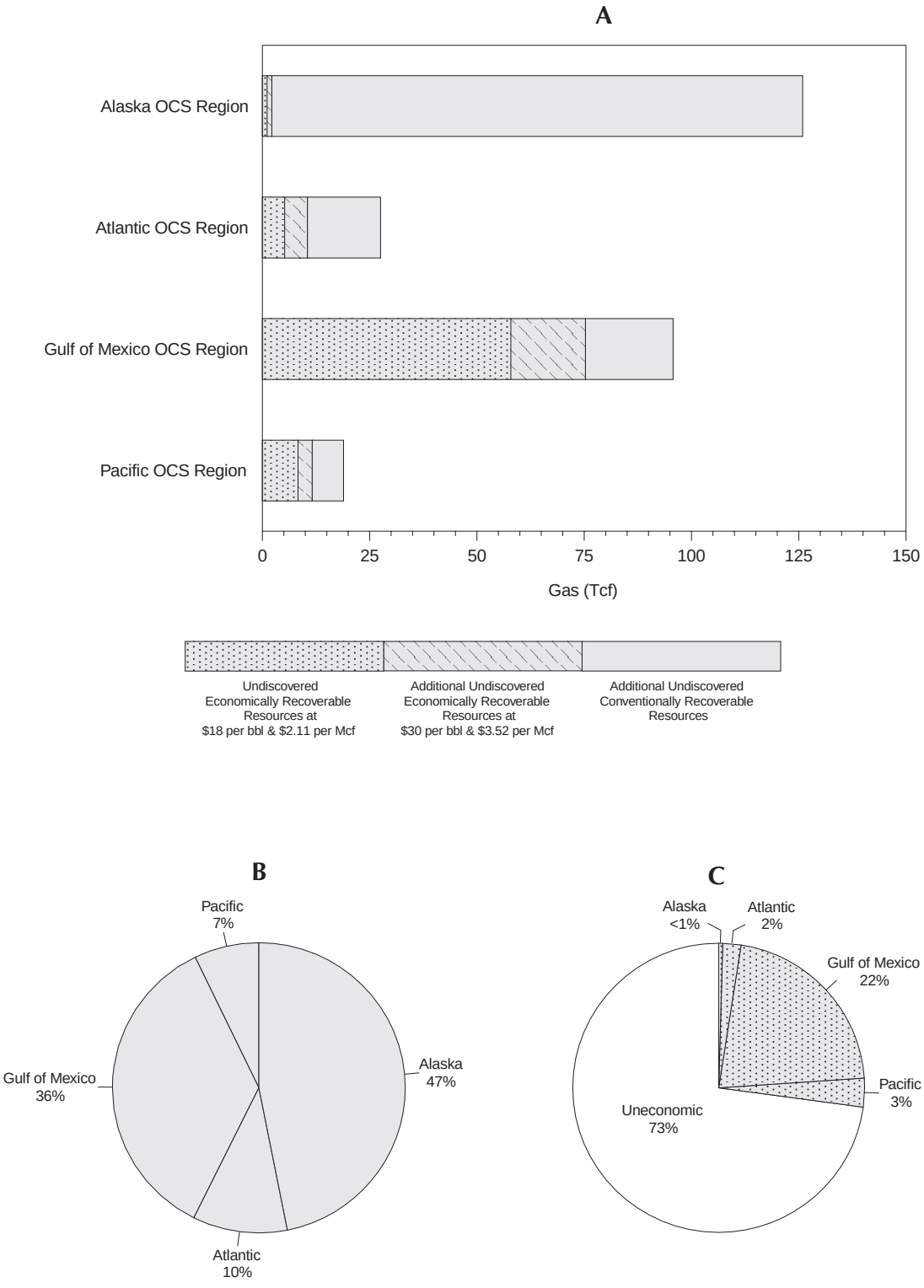

Figure F3. *Distribution of undiscovered conventionally recoverable and economically recoverable gas resources in the United States OCS, by region based on risked mean estimates listed in tables F1 and F2. Bar chart (A) shows incremental volumes of undiscovered economically recoverable gas resources for two economic scenarios and additional undiscovered conventionally recoverable gas resources; the entire bar represents the estimated total volume of undiscovered conventionally recoverable gas resources. Pie charts show proportionate volumes of undiscovered conventionally recoverable gas resources (B) and undiscovered conventionally recoverable gas resources that are economically recoverable versus uneconomic at the $18-per-bbl scenario (C). The sum of the percentage values in some pie charts may not equal 100 percent due to independent rounding.*

Table F2. *Estimates of undiscovered economically recoverable oil and gas resources in the United States OCS as of January 1, 1995, by region. All estimates are risked mean values. The $18-per-barrel economic scenario is based on prices of $18 per bbl of oil and $2.11 per Mcf of gas; the $30-per-barrel economic scenario is based on prices of $30 per bbl of oil and $3.52 per Mcf of gas. Some total values may not equal the sum of the component values due to independent rounding.*

Region	$18-per-barrel Scenario			$30-per-barrel Scenario		
	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)	Oil (Bbbl)	Gas (Tcf)	BOE (Bbbl)
Alaska OCS	3.8	1.1	4.0	6.7	2.2	7.1
Atlantic OCS	0.4	5.2	1.3	1.1	10.5	2.9
Gulf of Mexico OCS	4.9	57.9	15.3	6.6	75.3	20.0
Pacific OCS	5.3	8.3	6.8	7.2	11.6	9.3
Total United States OCS	*14.4*	*72.5*	*27.3*	*21.6*	*99.6*	*39.3*

REFERENCES

Lore, G.L., Brooke, J.P., Cooke, D.W., Klazynski, R.J., Olson, D.L., and Ross, K.M., 1996, Summary of the 1995 assessment of conventionally recoverable hydrocarbon resources of the Gulf of Mexico and Atlantic Outer Continental Shelf: Minerals Management Service OCS Report MMS 96-0047, 41 p., 5 app.

Minerals Management Service, 1996, An assessment of the undiscovered hydrocarbon potential of the Nation's Outer Continental Shelf: Minerals Management Service OCS Report MMS 96-0034, 40 p.

Sherwood, K.W., Craig, J.D., and Cooke, L.W., 1996, Endowments of undiscovered conventionally recoverable and economically recoverable oil and gas in the Alaska Federal offshore: Minerals Management Service OCS Report MMS 96-0033, 17 p.